

CHAPTER - II

A TEXT TECHNOLOGY

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CHAPTER-II

A TEXT TECHNOLOGY

This is the age of Computers and Satellite communications. In most field powerful and advanced technologies are found. Yet only the print media is used in the class-room. It is the age of computer literacy, still text-books are used. Text-books and ' other print media have been in use even before the term ' Educational Technology' was coined. Can we call print media as a part of Educational Technology ? The answer to this question is definitely yes and we can explore it in this research.

II-1 TOWARDS A TEXT TECHNOLOGY -

The technology of text material, providing a coherent frame work for bringing together the diverse, relevant prospectives is yet to emerge; however i) The advancement in print technology and ii) the advancement in technology of text have helped us to make headway towards the technology of text material. There were twelve basic steps in producing and distributing the text books, which have undergone changes over the last 150 years. By the mid twentieth Century there were few changes in the basic 12 steps. Type machines enabled an operator to compose the content at a key board. As the type set was mechanised, publishing a book was faster and was produced

of a higher quality. Options like full colour, illustrations graphics etc. are the fruits given by print technology.

By the 1980's remarkable innovations in the publishing process appeared, with the application of the electronic computers and laser technology in the many stages of production and distribution of books and periodicals. Authors could use micro-computers to prepare the manuscript. Electronic devices have several radical influences on the publishing and distribution processes.

The advancement of printing technology has the following distinct implications for text books and print media publications :

- i) The process of publishing is now at a much faster scale.
- ii) The books are more accurate, attractive and innovative because of their layout, print, illustrations, colour printing.
- iii) Work books, supplementary materials and small size learning materials in deserved quantity as per the needs of the students can be made available.
- iv) Localisation of text book production is now possible in the near future, every school or college can produce its own.

- v) Revision, editing and updating of print material is now easily and readily possible.
- vi) The cost of such material will be comparatively low so that every student can purchase his or her own copy.

II.2 ADVANCES IN TECHNOLOGY OF TEXT

Technology of text material is the answer to the question of the efficiency of text material for instructional purposes. The major issue is what aspect of text book enhances learning and how such features may be improved to further facilitate learning and develop the skills and attitudes associated with the mastery of ideas and information. The research related to this issue is a scattered one and belongs to the diverse areas ranging from reading research to educational psychology and typography. There are six dimensions of technology of text materials they are as follows -

- i) Physical aspect of print material
- ii) Print orientation
- iii) Nominal Stimulus of text material
- iv) Mathemagenic activities
- v) Reader Characteristics
- vi) Outcomes of reading.

i) Physical aspects of print materials ;

It includes the following aspects - size and number of pages, paper quality, binding, cover page, title page and preliminary section of the material, comprising of the publication data, context, preface, price etc. As the physical appearance is expected to motivate the learner in selecting and reading the material, it should be attractive and complete in all respects. Its price should be reasonable, to be within the reach of the individual reader.

ii) Print Orientation -

In this context the following details are considered - line length, type characteristics, spacing, margins, layout, spatial and typographic cues to the forms, functions, sequence, content and importance of segments of a passage. The researches related to these aspects have shown that these devices are important as they are linked to text - processing characteristics - that are how well a text is understood, remembered, recalled and utilization.

(Bhagoliwal B.S. 1973, John a sen. 1986)

iii) Print Materials -

A nominal stimulus - The actual text and its attributes constitute the nominal stimulus. (Roth Koph, Ex Z.) (1976) . The following are the catagories of the characteristics of nominal stimulus -

A) content B) representation C) Form.

A) Content :

This is the most powerful characteristic of the nominal stimulus, content aspect are related to the meaning or purpose of the written message. The goals of the content may be well specified. The content is expected to be accurate, complete and related to the goals.

B) Representation :

Selection of words representing the meaning, selection of metaphors, similies or referencial phrases and origanization or sequence of content are the aspects of representation.

C) Forms :

Form factors include gramatical structure, complexity and sentence length (Roth Ko.E-2. 1976)

iv) MATHEMAGENIC PROCESS :

The mathemagenic processes are text comprehension process. The processes comprise activities which lead to the birth of knowledge. There are two types of mathemagenic processes.

- 1) Primary mathemagenic process.
- ii) The secondary mathemagenic process. The primary mathemagenic processes are related to i) fixation of the eyes on the reading material ii) translation/ conversion of printed language form into a speech or quariacostie form and iii) analysing the sentence

structure. This results into an immediate representation, of the text called, ' usable representation.' The secondary mathemagenic process are related to (i) Further operation on usable representation so that works, sentences are meaningfully interpreted and (ii) comprehension of the usable representation in relation to the readers knowledge.

These mathemagenic processes are affected and enhanced by devices such as advance organizers, pattern guides, outlines organization of material in the inductive and deductive manner, use of mental images, summarising or reviewing, illustrations, inserted and adjunct questions.

ADVANCE ORGANIZERS

According to David Ausubel advance organizer is an introductory material that is presented ahead of learning task. It is at a higher level of abstraction than the learning task itself, and hence in intergrating and interrelating the new learning material with provisionally learned material. The advance organizer is always familiar to the learner and has also links with new learning material. It is generally based upon major concepts, proportions, generalizations, principles and laws. This kind of organizer is called expository organizer.'

The advance organizer may also be in the form of

analogy. There is also comparative organizer where in the new concepts are compared to the older one.

PATTERN GUIDES :

There is need to build awareness of text organization. For this purpose devices and techniques are incorporated in text. There are four types of structures i) a comparison of two equally weighted arguments ii) a favoured compared to an opposing view iii) The qualities of some one, something iv) problem solution pattern. If the students are able to recognize the structure, they can recall information from their reading.

OUTLINES

These are the devices used to high light the concepts in the text and their inter relationships. The concepts are listed in a proper order at the begining of each chapter in the text. There relationships are also indicated by the use of words, lines and arrows, in a diagramatic form with super ordinate concepts at the top and other subordinate and co-ordinate concepts in relation to that.

ORGANIZATION OF MATERIAL IN THE EDUCATIVE AND INDUCTIVE MANNER -

According to the maxim from general to specific, deductive organization of aspects is done. In this organization, first the statements, principles, prepositions,

generalisations or rules are stated then certain observations are stated. These observations are called (technically) minor premises. If the first, that is the major and minor premises, are true and valid, we can explain or draw ' predictive ' inferences about a particular incidence.

The inductive organization of material proceeds from specific to general. In this organization a large number of observations are first presented and then the generalization based on observation is given.

USE OF MENTAL IMAGES :

Mental images help to understand verbal description and text. Students can learn to picture in their minds what words and sentences represent. This could be enhanced by providing opportunities to students to share what they have learned, and what apply to newly acquired concept in a variety of situations. This may be achieved by including certain case-studies, exercises based on application of knowledge, raising of some questions, asking them to give answers. Students can also be asked to record -

- i) What they knew about the topic
- ii) What they want to know about the concept
and
- iii) What they have heard about the concept
of topic.

SUMMARISING AND REVIEWING

Author can present the summaries on the key points in the text. Summaries written by students greatly enhance comprehension. It is advisable to text book producers to oppartunity for students to write summary themselves.

Certain techniques may be used to write summaries.

- i] Deleting of trival and reduntent information. A student is asked to minimise the information by deleting repeated words and information.
- ii] Substituting super ordinate term for list of terms, there one term conveys meaning of whole sentence.
- iii] Substituting encompassing action for sub compound action.
- iv] Inventing a sentence to substitute a paragraph. Many times a meaning of paragraph is told in a single sentence i.e. paragraph ll see Appendix - CHAO was a merchant in ancient China.

ILLUSTRATIONS

Illustrations in text play three roles -

- a) An attention role -
Here illustration is primarily intended to keep students interested.
- b) Explicative role -
An illustration directly assists comprehension by visually clarifying a point.

- c) **A retentional role**
 An illustration assists later retention of information by being easier to recall verbal ideas done.

Texts with illustrations are comprehensions of verbal and graphic components. Studies indicate that illustrations in text keep student interested and helps in understanding the text. Drawings, graphs, charts, simple and line drawings, cartoons in black and white form etc. are the examples of illustrations. For example see Appendix Para 14 ' the deer srakup in a flash ' - Retention role

- 2) A forsty winter one might doubt - retention role.
- 3) Early next morning workmen came and collected the metal pieces of statue.

Attention Role

Exercises -

The aim of exercises is to provide learning through practice and reinforcement. Having finished discussion on a concept or item, students may be provided practice of working on exercises immediately. It will help students to check or reverse their performance. There are many types of exercise like 1) Drawing conclusions from the details. For this after teaching or lesson, ask the students to discuss on the topic which is taught 2) Sometime, if the information can be diagramatic, there may be provision in the text book for drawing diagram. 3) And students can be asked to apply the knowledge, they have learnt.

Adjunct Questions -

These questions are set at the end of lesson the aim is to check what type of information is grasped by the students. These questions are expected to be factual questions. There are four types of questions -

- 1) **Massed pre questions -** These questions occur at the beginning of the text.
- 2) **Inserted pre questions -**
These questions are inserted into the text. There are number of questions. Their aim is to continue the information i.e. see para - 9
Appendix 1) 'Do you really want to know ? ' asked the merchant ...
- 3) **Inserted post questions -**
The adjunct questions are inserted into the text at a number of point.
- 4) **Massed post questions -**
In this kind, adjunct questions are placed together at the end of the text i.e. questions given in the exercises at the end of each lesson.

The studies on adjunct questions concluded that factual pre and post questions facilitate the learning of material covered directly or indirectly.

- 2) **Factual Adjunct questions given in short answer format have stronger facilitative effects. The multiple choice format do not give this interest.**

- 3) For shorter text, pre questions are more effective, for longer text post questions are more effective.
- 4) Higher order adjunct questions emerge as superior in comparison to functional adjunct questions.
- 5) Inserted post questions and massed post questions have shown equal effect.

The forgone findings have implications on writing text. Framing the adjunct questions become easy.

- 6) The above mentioned devices facilitate the mathemagenic process, including print materials used for academic purpose.

The text material along with mathemagenic devices, interect with innovative use of text book.

II.3 INNOVATIVE USE OF PRINT MATERIAL

A planned change in existing text material is termed as the innovative use. Text book and other printed material can be used in various ways in the classroom. A creative teacher can do this. Some of the innovative uses and activities are as follows -

- 1] Use of text book as resource or reference book -
Text books of higher classes can be used as reference resource or general reading books. This provides ideas, backgrounds, resource in understanding the text book. Students of higher classes may evaluate the text books of lower classes.

ii) Teacher can organise discussions, story telling, picture analysis on text illustrations. The students are expected to suggest modifications of illustrations, places or points where illustrations may be needed.

3) Challenging Text -

There are opinions, facts, thoughts, statements given in the text. Teachers are expected to encourage students to challenge these. 'Why', 'if', 'then' type of techniques to find out the inadequacy and inaccuracy of the text.

4) Word building activities -

The teacher may select known and unknown words from the text and ask students to make a list of words that may be prepared from the alphabets of the selected word. This is a word building activity. Teachers may select synonyms alternatives, create devices to aid memory. There are many such devices. The teacher should ensure that students know the concept represented by each word.

5) Interchange views -

There are correlations between text books and other subjects books i.e. History, Geography, Science, Maths, these texts can be used for language teaching. History, Geography can be used for science teaching.

6) Highlighting important points -

Some important illustrations, points, features

sentences, words, pictures are required to be printed in coloured ink. It lures the attentions of the reader i.e. The main point, points should be printed in bold type and coloured ink.

7) Use of preliminary and reference section

In all the books, there is a preface, content, of books and index. Students may be encouraged to use this preliminary section. They will prepare the index if it is not given. It will be an innovative activity.

8) Searching for values -

Students may be encouraged to search for underlying values as expected by the author. For this, they can be asked after every lesson to write down what moral they have learnt. The same material can be used for relating to other values. They can, in this way find out other values from the same material.

9) Framing questions

When a lesson is over, a teacher may ask the students to prepare a variety of questions on the subject. In this way they can evaluate the existing questions and frame new questions.

10) Supplementary assignments or activities -

Teacher's can give a variety of activities i.e. suggesting alternative title, giving additional examples, preparing supplementary materials etc for this lessons in the text.

11) Linking subjects -

Many times a content of one text can be linked with the content of other text, of other subjects. A teacher should try this i.e. ' A story of ' 10 sticks and old man ' can be linked to science lessons'. There may be some linking of scientific principles.

In this way teachers may make innovative use of the text book. The text book producers may follow the above points while preparing and planning text to make there effective and creative learning material.